Regency® COMMUNICATIONS INC.

PRELIMINARY SERVICE MANUAL

RF POWER AMPLIFIER

MODEL BAH 60

1227 S. PATRICK DR.
SATELLITE BEACH, FLA.

0300-4091-900

PRINTED IN U.S.A.
10/78

FINAL TEST PROCEDURE BAH-60

A. Power Amp Alignment

I. Test Set-up

A. Equipment

1. RF Power Oscillator or Transmitter
2. 156 MHz Circulator
3. Thruline Wattmeter & 50W 100-250 MHz Element
4. Thruline Wattmeter & 500W 100-250 MHz Element
5. 200W - 50 ohm - RF Attenuator or Load
6. 156 MHz Notch Filter
7. Spectrum Analyzer
8. DC Power Supply
9. DC Voltmeter 0-20 VDC
10. DC Power Supply 13.6 VDC - 25A
11. Amp Meter 0-25 Amp
12. Frequency Counter 156 MHz
13. BAH-60 Power Amp
14. Blade Type Tuning Tool

REV	CHANGE	DATE
A	ECN AA145 Carl Hoover	4-22-87

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REFERENCE BAH-60

REGENCY ELECTRONICS INC. INDIANAPOLIS, INDIANA 46226

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ANGLES ± —
SCREW THREADS - AMERICAN NATIONAL CLASS

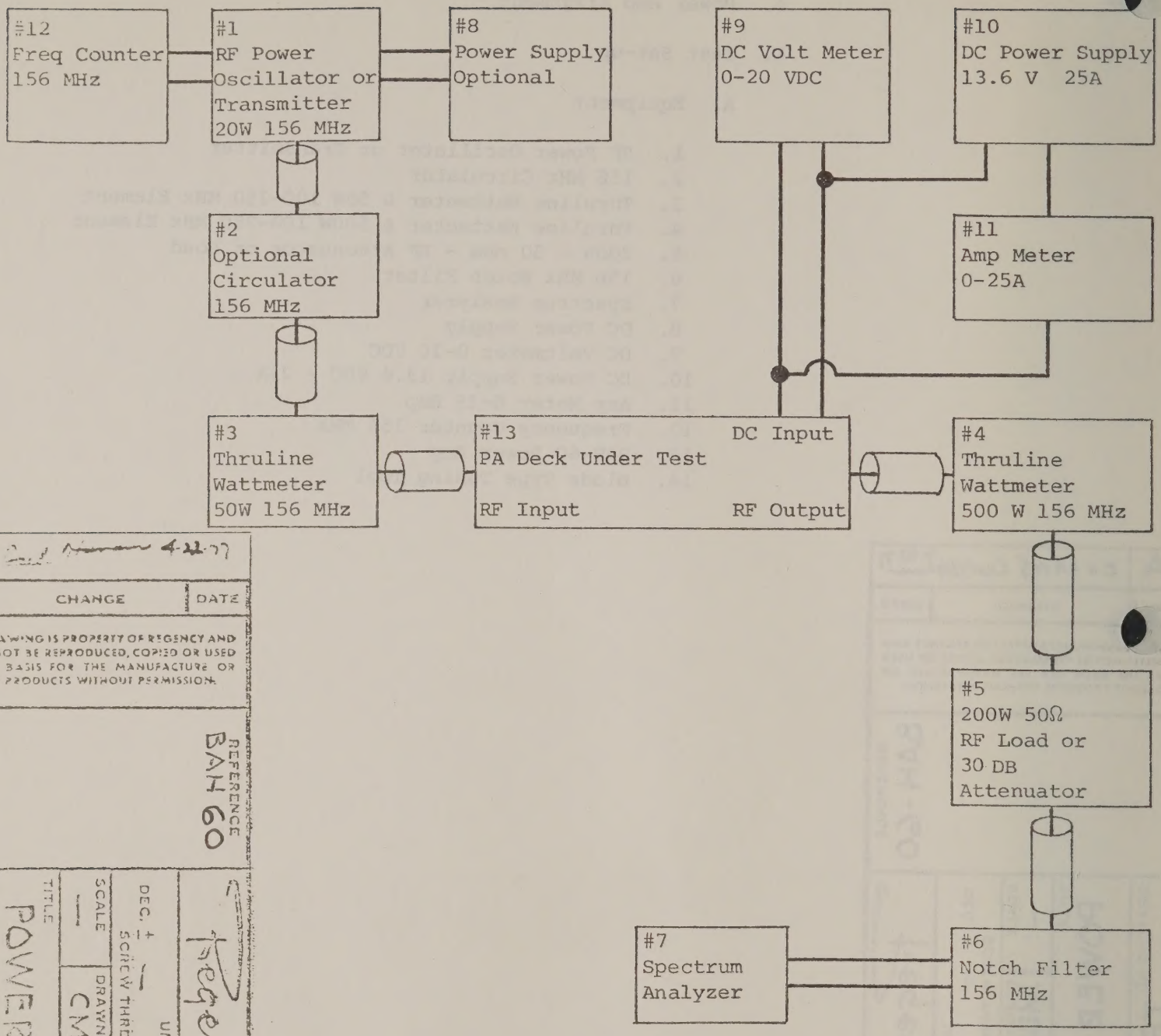
SCALE —
DRAWN MDF
CHECKED

TITLE POWER AMP ALIGNMENT

DRAWING NO. TP 14-052 REV. A

TP 14-052

B. Test Interconnection Diagram



REV.	CHANGE	DATE
A	[illegible]	4-22-97

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TITLE
POWER AMP ALIGNMENT

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REV. A

TP14-052 REV A

II. Tune Up Procedure

A. Preliminary Presets

1. Connect the test equipment as shown on Part I of this procedure.
2. Preset the tuning controls C201, C202 and C224 per the tuning chart (Fig. 1).

B. Tune Up and Checkout Procedure

1. With the BAH-60 switch in the off position and the power supply (#10) set to 0 VDC, key the transmitter (#1) to check series pass mode operation of the deck. Set the input wattmeter (#3) for 20W forward power and measure reflected power. This level should not exceed 2.0W reflected. The output wattmeter (#4) should read greater than 15 watts.

2. Turn off the transmitter (#1) and set the DC power supply (#10) to 13.6 VDC. Switch on the BAH-60 SW101 and the green on-off lamp CR301 should light (CR302 should remain off).

   Note: Initial tune up requires the grounding of TP1. If TP1 is not jumpered to ground the relays will chatter until an acceptable input VSWR is achieved.

3. Jumper TP1 to ground (Junction of Q101, CR302 - a short TP wire protrudes from the back of the LED Bd.) This will cause CR302 to light (Red Trans Light) and both relays RL101, & RL102 to energize.

4. Key the transmitter (#1) and tune C202 for maximum power on the output wattmeter (#4). Then tune C201, and finally tune C224 in the same manner.

5. Measure the power indicated on the input wattmeter (#3) in the reflected mode tune C201 for minimum reflected power. The reflected power should not exceed 1.5W (with a BTH or MCH radio this corresponds to maximum forward power on the input wattmeter).

6. Retune C202 for maximum output power (#4) and C201 for minimum reflected power on input wattmeter (#3). The output power (#4) should exceed 60W minimum the input reflected power should be less than 1.5W.

7. Harmonics as measured on the spectrum analyzer (#7) with the notch filter (#6) tuned to the carrier frequency should be less than 50 DB with the case off and greater than 61 DB with the case on.

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A	Cal Hawn	4-22-77

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8. Unkey the transmitter (#1) and remove the jumper cable from the BAH-60. Key the transmitter and the BAH-60 should automatically key; the red lamp CR302 will light and the green light will go out (CR301). Unkey the transmitter (#1).

9. Remove the RF output cable from the BAH-60 and key the transmitter; the green lamp will remain on and the red lamp off.

10. For service limited to 60 watts, tune C224 clockwise until the output power (#4) reads 60 watts.

This completes the test of the unit and may be used for any frequency form 150 MHz to 174 MHz.

III. Table of Performance Limits (V_S = 13.6 VDC, f = 150-174 MHz)

Condition	Pwr in Forward	Pwr in Reflected	Pwr Out	DC Input Current	Spurs
Off Series Pass	20W	2.0W max	15W min	0	> 56DB
On Amp-50Ω Load	20W	1.5W max	60W min	11A max	> 61DB
On Amp-High VSWR	20W	20W	0	.1A	—

REV.	CHANGE	DATE
B	EN AA-248	
	Carl Hansen 10-13-77	
A	Carl Hansen 9-22-77	

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Carl Hansen 4-12-77

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TP 14-052 REV A

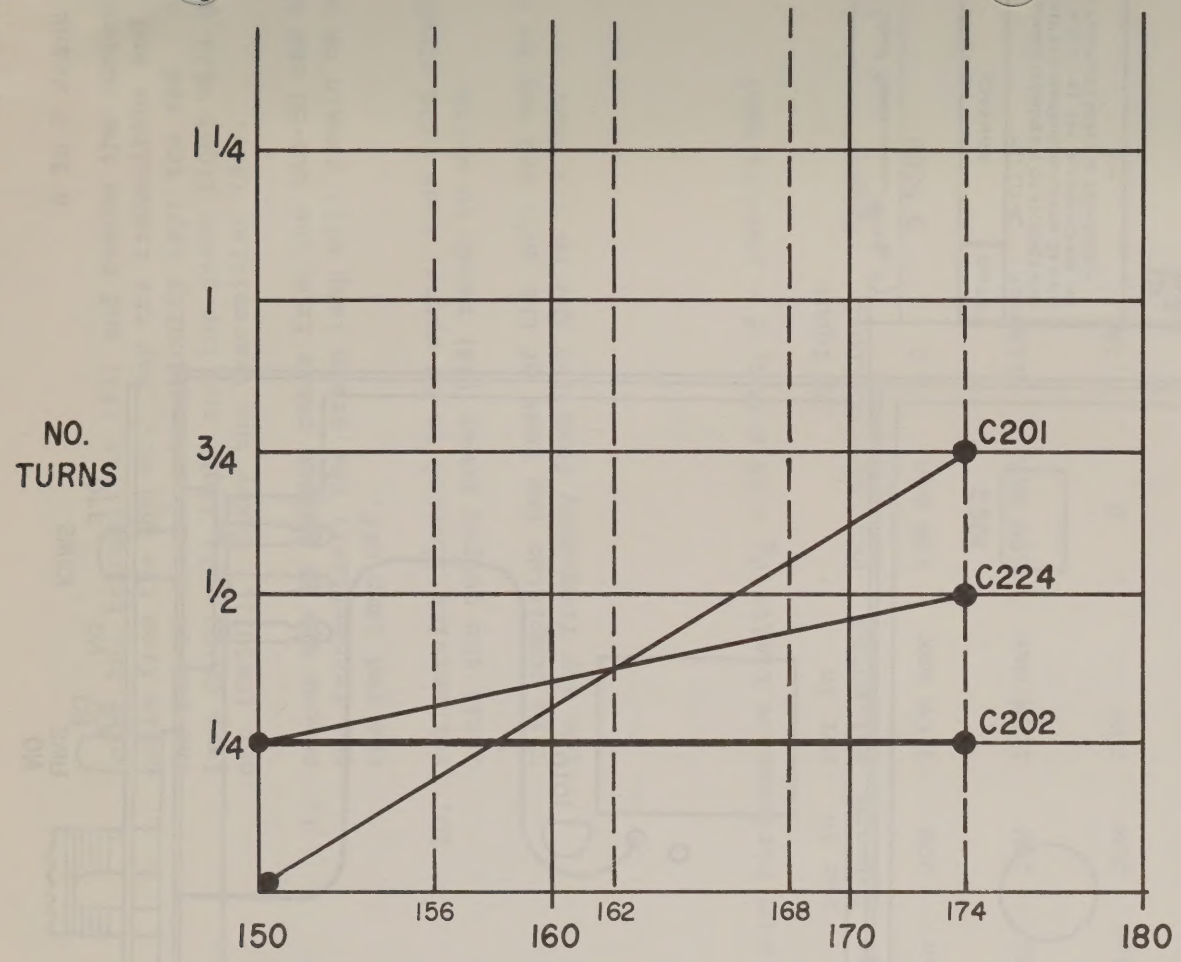

FIG. 1 TUNING CHART

(IN TURNS CCW FROM TIGHT)

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A	Carl Adams	4-22-77

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TITLE
POWER AMP ALIGNMENT

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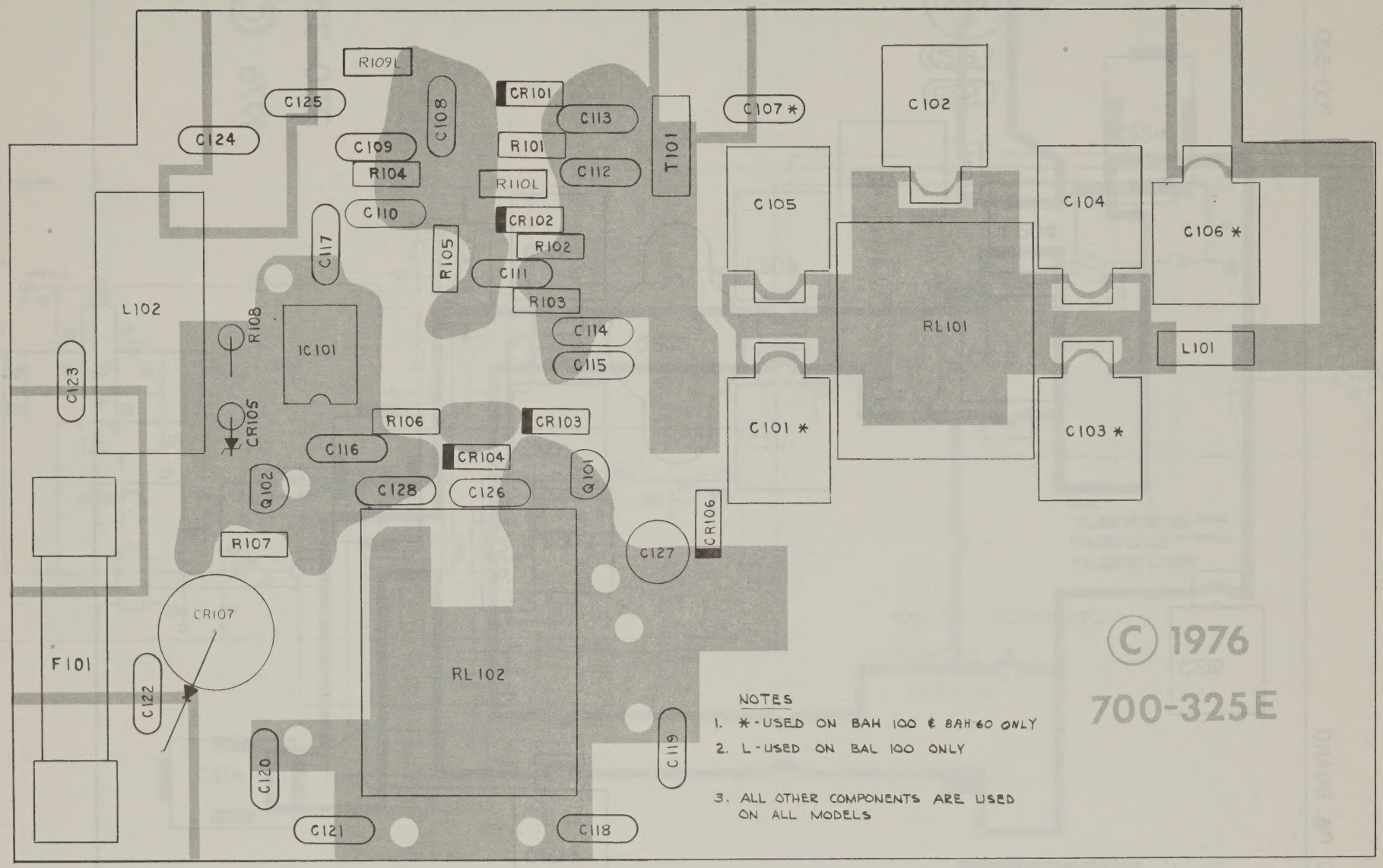
R109L
C125
C124
C108
CR101
C113
C109
R101
R104
C112
R110L
C110
CR102
R102
C111
R103
C114
C115
C117
R105
T101
C107*
C102
C105
C104
C106*
L102
R108
IC101
C123
CR105
R106
CR103
C116
CR104
Q102
C128
C126
Q101
C101*
RL101
C103*
L101
CR106
C127
R107
CR107
F101
RL102
C122
C120
C119
C121
C118
NOTES
1. *-USED ON BAH 100 & BAH 60 ONLY
2. L-USED ON BAL 100 ONLY
3. ALL OTHER COMPONENTS ARE USED ON ALL MODELS
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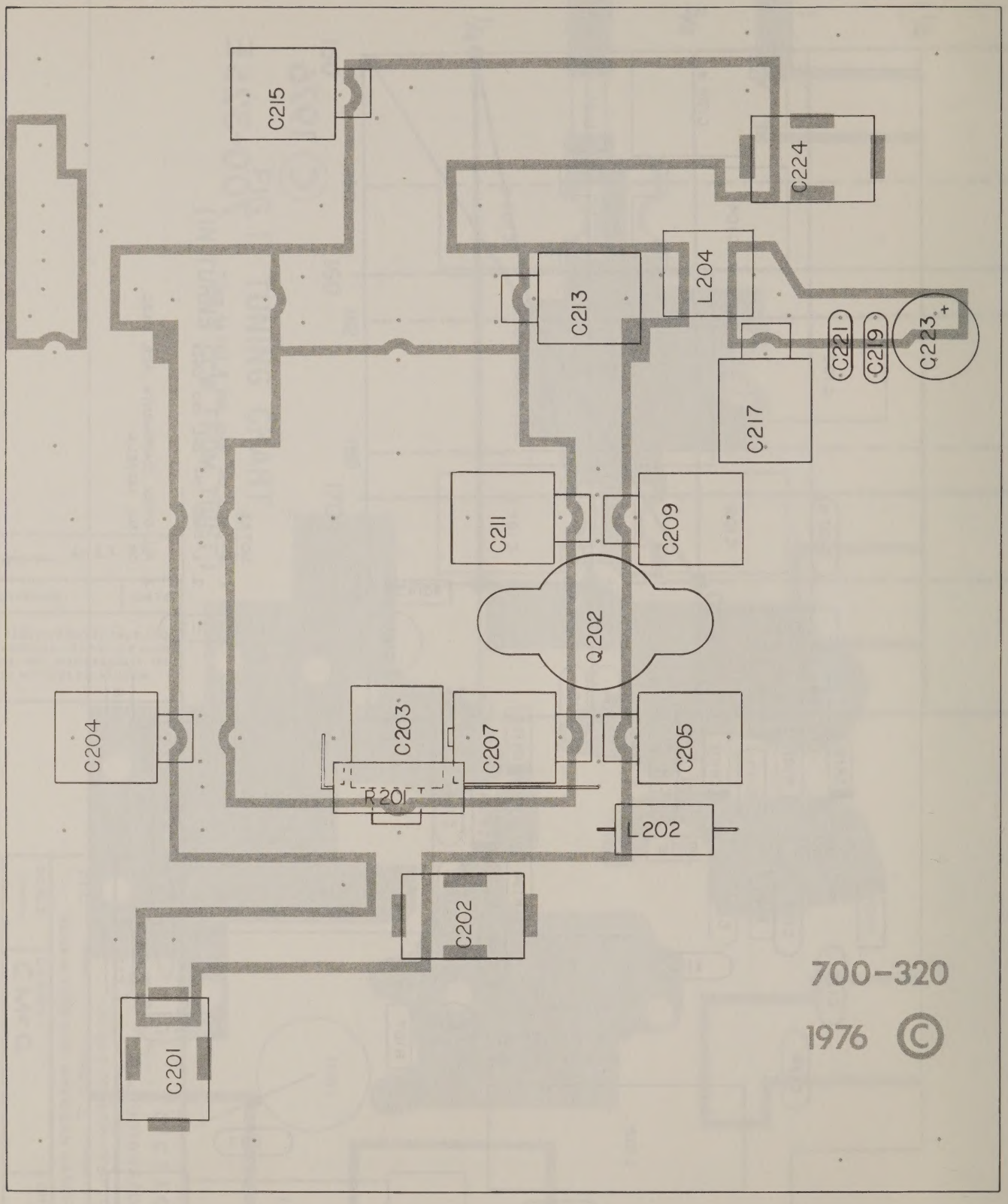
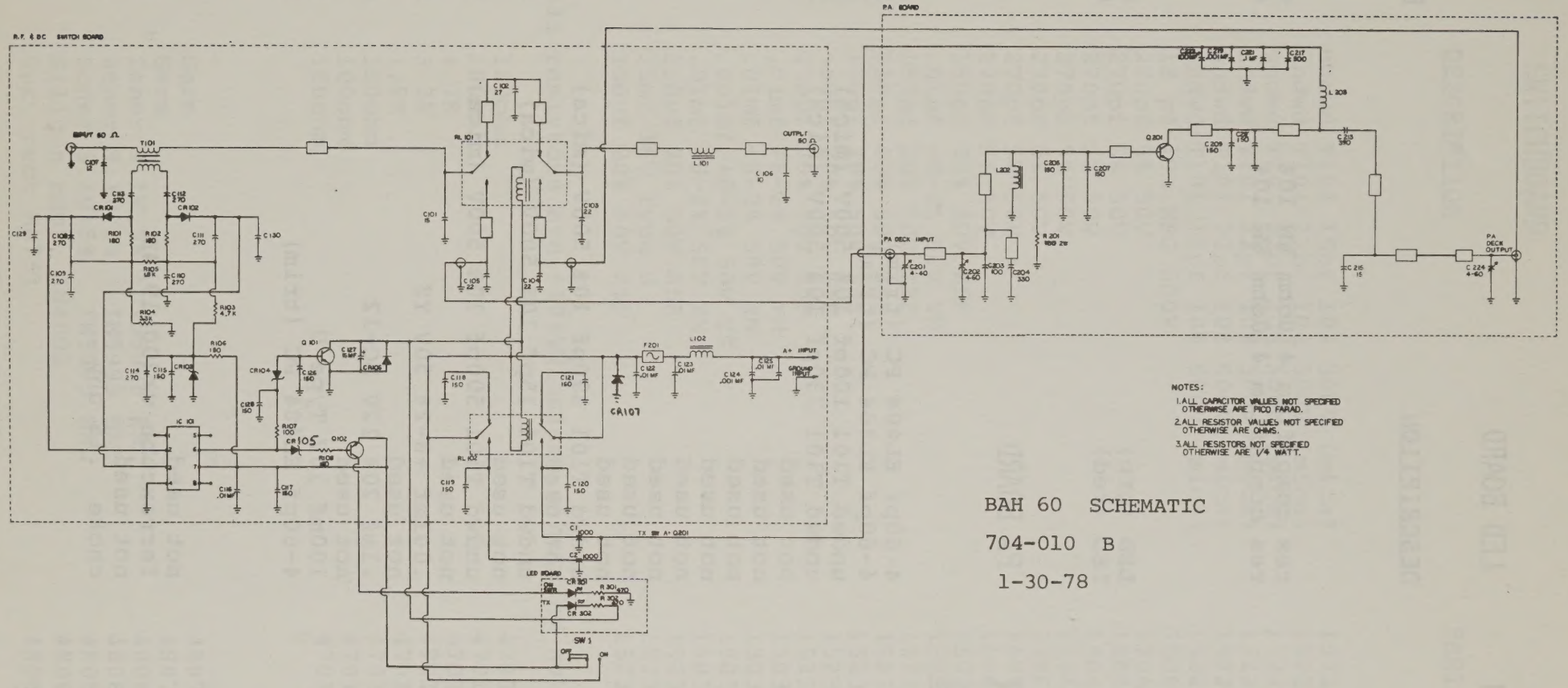
700-325E


C215
C224
L204
C213
C221
C219
C223
C217
C211
C209
Q202
C204
C203
C207
C205
R201
L202
C202
C201
700-320
1976 ©



NOTES:

1. ALL CAPACITOR VALUES NOT SPECIFIED OTHERWISE ARE PICO FARAD.
2. ALL RESISTOR VALUES NOT SPECIFIED OTHERWISE ARE OHMS.
3. ALL RESISTORS NOT SPECIFIED OTHERWISE ARE 1/4 WATT.

BAH 60 SCHEMATIC

704-010 B

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PARTS LIST LED BOARD

LOCATION	DESCRIPTION	PART NO.
RESISTORS		
R301	res comp/film 470ohm ¼W 10%	4701-0471-042
R302	res comp/film 470ohm ¼W 10%	4701-0471-042
DIODES		
CR301	LED (grn)	4810-1299-300
CR302	LED (red)	4810-1282-900

PARTS LIST PA BOARD

CAPACITORS		
C201	4-60pf EL404 PC (trim)	1517-0000-002
C202	4-60pf EL404 PC (trim)	1517-0000-002
C203	undwd T101 100pf 10% 500V (mica)	1522-0101-002
C204	undwd T101 330pf 10% 500V (mica)	1522-0331-002
C205	not used	
C206	not used	
C207	not used	
C208	not used	
C209	not used	
C210	not used	
C211	not used	
C212	not used	
C213	undwd T101 390pf 10% 500V (mica)	1522-0391-002
C214	not used	
C215	undwd T101 15pf 10% 500V (mica)	1522-0150-002
C216	not used	
C217	undwd T101 500pf 10% 500V (mica)	1522-0501-002
C218	not used	
C219	.001mf +8-2% 50V YZ	1503-0102-003
C220	not used	
C221	.1mf 20% 12V BC-12	1502-0104-005
C222	not used	
C223	100mf 16V Type U	1513-0101-002
C224	4-60pf EL404 PC (trim)	1517-0000-002
COILS		
L201	not used	
L202	ferroxcube vk200 19/4B	2502-0000-002
L203	not used	
L204	choke .15 uhy	1803-3269-000
RESISTORS		
R201	res comp 100ohm 1W 10%	4701-0101-045

PARTS LIST SWITCHBOARD

LOCATION	DESCRIPTION	PART NO.
CAPACITORS		
C101	undwd T101 15pf 10% 500V (mica)	1522-0150-002
C102	undwd T101 27pf 10% 500V (mica)	1522-0270-002
C103	undwd T101 22pf 10% 500V (mica)	1522-0220-002
C104	undwd T101 22pf 10% 500V (mica)	1522-0220-002
C105	undwd T101 22pf 10% 500V (mica)	1522-0220-002
C106	undwd T101 10pf 10% 500V (mica)	1522-0100-002
C107	12 pf 10% NPO 500V	1500-0120-605
C108	270pf 5% 50V	1506-0271-550
C109	270pf 5% 50V	1506-0271-550
C110	270pf 5% 50V	1506-0271-550
C111	270pf 5% 50V	1506-0271-550
C112	270pf 5% 50V	1506-0271-550
C113	270pf 5% 50V	1506-0271-550
C114	270pf 5% 50V	1506-0271-550
C115	150pf 20% 50V Z5F	1523-0151-002
C116	.01mf +8-2% 50V YM	1503-0103-007
C117	150pf 20% 50V Z5F	1523-0151-002
C118	150pf 20% 50V Z5F	1523-0151-002
C119	150pf 20% 50V Z5F	1523-0151-002
C120	150pf 20% 50V Z5F	1523-0151-002
C121	150pf 20% 50V Z5F	1523-0151-002
C122	.01mf +8-2% 50V YM	1503-0103-007
C123	.01mf +8-2% 50V YM	1503-0103-007
C124	.001mf +8=2% 50V YZ	1503-0102-003
C125	.01mf +8-2% 50V YM	1503-0103-007
C126	150pf 20% 50V Z5F	1523-0151-002
C127	15mf 16V Type U	1513-0150-002
C128	150pf 20% 50V Z5F	1523-0151-002
RESISTORS	(all resistors are +10%¼W unless otherwise noted)	
R101	180ohm	4701-0181-042
R102	180ohm	4701-0181-042
R103	4.7K	4701-0472-042
R104	3.3K	4701-0332-042
R105	1.8K	4701-0182-042
R106	150ohm	4701-0151-042
R107	100ohm	4701-0101-042
R108	180ohm	4701-0181-042
DIODES		
CR101	Germ	4807-1233-900
CR102	Germ	4807-1233-900
CR103	Zener 9.1V 5% IN5999 BRL	4808-0000-028
CR104	Zener 9.1V 5% IN5999 BRL	4808-0000-028
CR105	Zener 5.1V 5% IN5993 BRL	4808-0000-030
CR106	Silicon rect IN4002	4806-0000-004
CR107	Cur rect MR751	4806-3408-901

LOCATION	DESCRIPTION	PART NO.
COILS		
L101	coil	1800-1314-400
L102	choke	1803-3269-400
T101	coil	1800-1314-300
INTEGRATED CIRCUIT		
IC101	IC MC1741 CPF	3130-3167-907
RELAY		
RL101	Relay Guardian 1335 P12/2 DC	4500-3251-900
RL102	Relay	4500-3269-100
FUSE		
F201	fuse 25A 3AG 125V	5106-0000-012